

REMARKS

Favorable reconsideration and allowance of this application are requested.

As an initial procedural note, the present amendment is being filed concurrently with a formal Request for Continued Examination (RCE) under 37 CFR §1.114. Accordingly withdrawal of the "finality" of the April 14, 2006 Official Action is in order so as to allow entry and consideration of the amendments and remarks presented herewith.

Claims 1-14 remain pending herein. In order to address the rejection of claims 3-11 advanced under 35 USC §112, second paragraph, the radical X has been defined in claim 3.

The only remaining issues to be resolved are the Examiner rejections of claims 1-2 and 12-14 under 35 USC §103(a) as allegedly unpatentable over Rath et al, and under the judicially created doctrine of "double patenting" based on claims 1-19 of Rath et al. Applicants respectfully suggest that neither rejection is appropriate against the amended claims as presented above.

In this regard, in order to address such rejections, the applicants have amended claim 1 so as to convert it to "product-by-process" format. The basis for this amendment is for example claim 3, which refers to a method for producing polyisobutenamines, and also page 3, lines 8 to 21 of the originally filed specification.

By the product-by-process form of amended claim 1, it is now unambiguously defined that X, which contains the amino group, is bound at the end of the polymer chain, i.e., pre-dominantly at the α carbon atom (and possibly in minor amounts also at the p carbon atom), i.e. at the atom which **terminates** the polyisobutyl radical R. This binding site is unambiguous for the following reason: The radical R is derived from a polyisobutene which contains at least 80 mol% of olefinic terminal groups (obtained in

step i)) and the radical X is introduced at exactly these olefinic double bonds (step ii)). This clearly means that X is bonded in a terminal position of the radical R.

In contrast thereto, the functionalized polyisobutenes R-X of Rath et al (US 6,133,209) are derived from polyisobutenes with internal olefinic double bonds. This can be clearly seen from the fact that the functionalized polyolefin of the formula R-X as claimed in claim 8 of Rath et al is derived from a polyolefin obtained by catalytic dimerization of at least monounsaturated olefin oligomers.

This means in conclusion that the amino containing group X is also bound to an internal carbon atom of the radical R due to the following reasoning:

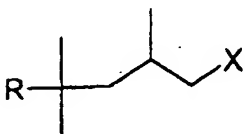
- (1) As already explained in the applicants' prior response to the Official Action dated May 20, 2005, dimerization of unsaturated olefin oligomers mandatorily yields polymers having internal double bonds (as can also be seen from table 1 of Rath et al where it is clear that the resulting polyolefin does not contain any terminal double bonds (vinylidene content = 0)).
- (2) The functionalization of such a polymer to give R-X can only take place at the internal double bond. This can be seen, e.g., from the functionalization methods described in the US reference, namely hydroformylation with subsequent reductive amination (col. 7, line 20 et seq.), epoxidation and subsequent amination (col. 12, line 61 et seq.) and Ritter reaction (col. 14, line 13 et seq.) — all reactions which take place at olefinic double bonds. Consequently, the introduced group X in claim 8 of Rath et al is bound to an internal carbon atom of the polyolefin radical R.

The Examiner will also specifically note that, although in both amended claim 1 of the present application and in claim 8 of Rath et al the general formula of the functionalized polyolefin is R-X, these formulae do **not** represent the same compounds

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– i.e., since R in both cases has different meanings. This may be illustrated by following schematic formulae:

R-X according to the invention
(predominant structure)



where R is polyisobutyl chain

R-X according to Rath et al (predominant structures)



where R' and R'' are polyisobutyl chains
which may be identical or different (in their
chain lengths)

Therefore, the claimed polyisobutenamines are patentably distinct from those disclosed and claimed in the Rath et al reference. Withdrawal of the rejections advanced under 35 USC §103(a) and under the judicially created doctrine of double patenting is therefore in order.

Based on the amendments and comments presented above, applicants suggest that all claims now pending herein are in condition for allowance and Official Notice to that effect is solicited.

Respectfully submitted,

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